

Type I Progress Report  
ERTS-A

- a. Title: Identification of Geostuctures of Continental Crust,  
Particularly as They Relate to Mineral-Resource Evaluation

ERTS-A Proposal No.: SR 180

- b. GSFC ID No. of P.I.: IN 387

- c. Statement and explanation of any problems that are impeding the progress of the investigation:

To date, no ERTS-1 data have been made available to the investigators, hence no progress has been made.

- d. Discussion of the accomplishments during the reporting period and those planned for the next reporting period:

None during reporting period (except see e below), next reporting period ERTS-1 data will hopefully be available to study.

- e. Discussion of significant scientific results and their relationship to practical applications or operational problems including estimates of the cost benefits of any significant results (To be prepared in scientific abstract form of 200 words or less):

See attached statement.

- f. A listing of published articles, and/or papers, pre-prints, in-house reports, abstracts of talks, that were released during the reporting period:

Lathram, Ernest H., and Gryc, George, 1972, Metallogenic significance of Alaskan geostuctures seen from space [abs.]: Eighth Internat. Symposium on Remote Sensing of Environment, Ann Arbor, Mich.

- g. Recommendation concerning practical changes in operations, additional investigative effort, correlation of effort and/or results as related to a maximum utilization of the ERTS system:

Recommend more rapid distribution of ERTS imagery.

- h. A listing of date of any changes in Standing Order Forms:

None.

i. ERTS Image Descriptor forms:

None.

j. Listing by date of any changed Data Request forms submitted to Goddard Space Flight Center/NDPF during the reporting period:

None.

k. Status of Data Collection Platforms (if applicable):

Not applicable.

# Metallogenic Significance of Alaskan Geostructures Seen From Space

by

Ernest H. Lathram and George Gryc

As a precursor to the ERTS-A investigation, the spatial relationship of geostructures seen on Nimbus IV IDCS photographs to the distribution of mineralized areas in Alaska and western Canada was analyzed to determine the possible metallogenic significance of the geostructures.

In Canada, mercury and porphyry molybdenum deposits are closely associated with strong northwest-trending fault systems; the development of mineralized regions seems related to major crustal zones or fractures trending southwestward across the Cordillera from the Precambrian shield.

In Alaska, comparison of the northeast- and northwest-trending set of possible crustal structures shown on the Nimbus photo, with the distribution of known mineral deposits suggests a similar relationship. The mineralized region of massive sulfides in Prince William Sound and upper Copper River areas and of porphyry coppers in the Nabesna area forms a broad northeast-trending belt possibly related to the Minto Arch on the Shield. The belt of metalliferous deposits in the western Alaska Range follows a comparable northeast trend. Mercury deposits, suggested by many to be fault-controlled, together with most tin and tungsten deposits, occupy a northeast-trending belt between the Bristol Bay-Mackenzie Bay linear and extensions of a linear along the lower Yukon River. This belt intersects the northwest-trending Canadian belt of similar deposits in the Fairbanks area.

(Category 3K)



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IDENTIFICATION OF GEOSTRUCTURES OF CONTINENTAL CRUST, PARTICULARLY AS THEY  
RELATE TO MINERAL-RESOURCE EVALUATION

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